REMARKS

In response to the Office Action mailed on July 16, 2007, Applicants respectfully request reconsideration. To further the prosecution of this Application, Applicant submit the following amendments and remarks discussing patentability of rejected and newly added claims. Applicants respectfully request that the application be passed to issue.

Claims 1-35 were previously pending in the subject Application. Claims 36-39 are being added by way of this amendment. Thus, after entry of this Amendment, claims 1-39 will be pending. No new matter was added to the application when amending or adding these claims.

Applicant are appreciative of the Examiner's review of the claims and allowance of claims 7-16 and 23-33.

Summary of an Embodiment of the Invention

Prior to discussion of the pending claims, Applicant would like to briefly discuss an illustrative embodiment of the present invention. One embodiment of the present invention, in contrast to conventional approaches, is directed to a technique for communicating in a network. For example, a first data communication device (e.g., a thin client) receives data from a second communication device (e.g., a server or central computer) over a network. The first data communication device detects an actual bandwidth associated with receiving data from the second data communication device. Based on an actual detected bandwidth associated with receiving the data, the first data communication device generates a bandwidth metric identifying a proposed data rate for transmitting future data from the second communication device to the first data communication device. The first communication device transmits the bandwidth metric to the second data communication device for future data transmissions. Based on use of this technique, the second communication device transmits at or near a maximum possible bandwidth supported by a network link supporting transmission of data to the first data communication device.

Rejection of Claims

The Examiner has rejected claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Tolety (U.S. Patent 6,996,132) in view of McKinnon (U.S. Patent 6,993,044). Applicants are appreciative of the Examiner's review of pending claim 1 and respectfully request further consideration.

The claimed invention recites steps of:

detecting an actual bandwidth associated with receiving data from a second data communication device;

generating a bandwidth metric based on the actual bandwidth associated with receiving the data, the bandwidth metric identifying a proposed data rate for transmitting future data from the second data communication device to the first data communication device; and

transmitting the bandwidth metric to the second data communication device.

The Examiner likens the claimed invention to Tolety and McKinnon. Applicant respectfully traverses the rejection because the claim includes limitations not recited by Tolety or McKinnon. Thus, the Applicant contends that the office action uses hindsight to reject the claimed invention.

More specifically, claim 1 recites that the first data communication device detects the bandwidth associated with receiving data and generates the bandwidth metric. In other words, the device receiving the data measures the associated bandwidth. According to Tolety starting at column 7, line 58:

Having described the various components of the communication system 10 in detail, an aspect of this invention will now be described. In accordance with this aspect of the invention, the inventor has invented a novel method, apparatus, and program for

determining an amount of bandwidth that is available in at least one communication path which couples together nodes in a communication system. The method is preferably performed by exercising the communication path (formed by the communication system components coupling together the nodes 22 and 1) using information signals, to determine a minimum amount of time it takes for the information signals to traverse the path, in each direction, and by performing a predetermined algorithm employing the determined amount of time to calculate the bandwidth (in one of those directions). Preferably, the exercising operation includes a step of using first information signals to exercise a first portion of the communication path, formed by the links 24a, 24b and the router 15, to determine an amount of queuing delay (QD) in the router 15, based on a first predetermined algorithm. The exercising operation preferably also includes another step of using second information signals to exercise a second, larger portion of the communication path, coupling the test node 22 to the user communication terminal 1, to determine the minimum amount of time (also referred to as a "round trip time RTT.sub.T-CPE") it takes for the information signals to be transferred bidirectionally between the test node 22 and user communication terminal 1 by way of that path. The bandwidth in question (e.g., the downlink bandwidth available in the portion of the communication path formed by the components coupling the user communication terminal 1 to the router 15), is then estimated based a second predetermined algorithm defining the bandwidth in terms of the queuing delay of the router 15 and the determined round trip time RTT.sub.T-CPE. (emphasis added)

In contradistinction to Tolety and the argument presented in the office action, claim 1 recites that the first data communication device detects the actual bandwidth associated with receiving the data. As indicated above, Tolety discloses a way of merely estimating the bandwidth. An estimation of bandwidth is not equivalent to detecting the actual bandwidth. Also, the estimation in Tolety is not done in the same device that is receiving the data as is recited by the claimed invention. Accordingly, this aspect of the claimed invention distinguishes it over the cited prior art.

Note further that Claim 1 recites that the first data communication device transmits a bandwidth metric to the second data communication device. According to Tolety starting at column 3, line 12:

> In accordance with another embodiment of this invention, uplink and downlink bandwidth rates available in the communication path are determined by <u>transferring a file between a test node and the user communication terminal,</u> by way of the at least one communication path and a router. <u>The uplink and downlink bandwidth rates are then calculated based on the file size, a rate at which the file is received at the terminal, and a rate at which the file is received at the test node, respectively.</u> (emphasis added)

Applicant respectfully submits that this portion of Tolety is not equivalent to transmitting a bandwidth metric as in the claimed invention. For example, Tolety merely indicates that bandwidth rates are estimated based on file size and a rate at which a transferred file is received. This passage provides no indication whatsoever that transmitting of the file in Tolety is used to notify a second data communication device of a proposed data rate for transmitting future data from the second data communication device to the first data communication device. In other words, the claimed invention recites that a data receiver (e.g., the first data communication device) transmits the bandwidth metric to a data sender (e.g., the second data communication device), the bandwidth metric the bandwidth metric identifying a proposed data rate for transmitting future data from the sender to the receiver. The device in Tolety receiving the transferred file produces no such bandwidth metric as recited by the claimed invention. Thus, Applicant respectfully submits that this claim limitation is also not taught or suggested by Tolety.

Note that claims 2 and 36 provide further distinction with respect to detecting the actual bandwidth as in the claimed invention.

The office action concedes that Tolety does not teach or suggest that the bandwidth metric in claim 1 identifies a proposed data rate for transmitting data from the second data communication device to the first data communication device. The office action contends that McKinnon teaches such a limitation. Applicants respectfully disagree with this assertion. First, there is no indication whatsoever in McKinnon that a data communication device receiving the data (and one which already expects to receive future data) creates and transmits a bandwidth metric (as in the claimed invention) to another communication device from which data is being received. Instead, McKinnon only indicates that a user's bandwidth allocation is set equal to a forecasted bandwidth. It would be up to the user to retrieve data and use all or a portion of the allocated bandwidth. There is no indication whatsoever in McKinnon that the user would then notify a data sender of a proposed rate for sending future data.

Transmission of the bandwidth metric as in the claimed invention enables the data receiver to take into account the actual rate that the first data communication device receives the data and send a proposed bandwidth rate for receiving future data. Thus, the device receiving the data (e.g., the first data communication device) notifies the data sender of needed future bandwidth, which may be critical to an application. In other words, based on the foregoing discussion, one aspect of the invention involves requesting and being granted bandwidth for a data stream based on actually measured bandwidth as measured at a receiver (e.g., a client) receiving the data. An amount of newly allocated bandwidth may depend at least in part on the actually measured bandwidth, allowing for more efficient use of available bandwidth.

For the above reasons, Applicant respectfully requests allowance of claim 1. By virtue of dependency, Applicant respectfully submits that claims 2-16 and new 36-39 should be in condition for allowance.

Claim 17 includes similar limitations as claim 1 and should be allowable for similar reasons. Accordingly, claim 17 and corresponding dependent claims 18-32 should be in condition for allowance.

Claims 34 and 35 each should be allowable for similar reasons as discussed above.

Note that each of the dependent claims includes further distinguishing features over the cited prior art. Some of the distinguishing features are discussed below.

Claim 3

Applicant would like to further point out that claim 3 includes further distinguishing language over the cited prior art. For example, claim 3 depends from claim 2 and recites that the bandwidth metric generated by the first data communication device is derived based on the actual bandwidth as well as the round trip time associated with communications between the first data communication device and the second data communication device. Tolety discloses use of the round trip time to estimate bandwidth. In contradistinction, the claimed invention recites the first data communication device detects actual bandwidth and generates the bandwidth metric for future data based on the actual bandwidth and round trip time for more efficient use of available bandwidth. Thus, Tolety does not teach or suggest the claimed invention.

New Claims 36-39

Applicant has added claims 36-39 to expedite prosecution of the present application to allowance. Support for these claims can be found (among other places) in Fig 1-4 and corresponding text of the application. Each of these claims includes further patentable distinctions over the cited prior art. By virtue of dependency, these claims should be in condition for allowance as well. Thus, Applicants respectfully requests allowance of these new claims.

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CONCLUSION

In view of the foregoing remarks, Applicants submit that the pending claims as well as newly added claims are in condition for allowance. A Notice to this affect is respectfully requested. If the Examiner believes, after reviewing this Response, that the pending claims are not in condition for allowance, the Examiner is respectfully requested to call the Applicant(s) Representative at the number below.

If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50-3735.

If the enclosed papers or fees are considered incomplete, the Patent Office is respectfully requested to contact the undersigned Attorney at (508) 616-9660, in Westborough, Massachusetts.

Respectfully submitted,

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